

Claims

- [c1] 1. An ether containing motor fuel additive composition which reduces and modifies combustion chamber deposit formation for the purpose of reducing engine octane requirement increase and allows the use of lower levels of ether while retaining engine performance comprising a mixture of: (a) a fuel conditioner component comprising: (i) from about 2 to about 50 weight percent, based upon the total weight of the fuel conditioner component, of a polar oxygenated hydrocarbon having an average molecular weight in the range of about 200 to about 500, an acid number in the range of about 25 to about 175, and a saponification number in the range of about 30 to about 250, and (ii) from about 2 to about 50 weight percent, based upon the total of the fuel conditioner component, of an oxygenated compatibilizing agent preferably having a solubility parameter in the range of about 7.0 to about 14.0 and moderate to strong hydrogen capacity; and (b) an ether selected from the group consisting of MTBE and ETBE.
- [c2] 2. The ether containing motor fuel additive composition according to Claim 1, allowing the MTBE to be reduced below 15 volume percent while maintaining desired engine performance.
- [c3] 3. The ether containing motor fuel additive composition according to Claim 1, allowing the ETBE to be reduced below 17.2 volume

percent while maintaining desired engine performance.

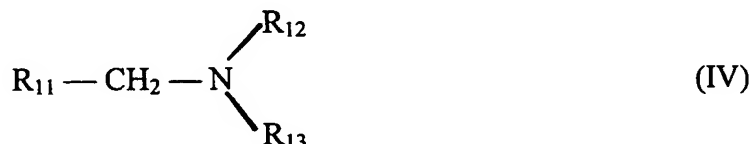
- [c4] 4.The ether containing motor fuel additive composition according to Claim 1, wherein said additive composition is added to the base fuel in an amount of from about 100 ppm to about 1000 ppm.
- [c5] 5.The ether containing motor fuel additive composition according to Claim 1, wherein said additive composition is added to the base fuel containing a detergent in an amount of from about 100 ppm to about 500 ppm.
- [c6] 6.The ether containing motor fuel additive composition according to Claim 1, wherein said additive composition is added to the base fuel simultaneously with any other additives.
- [c7] 7.The ether containing motor fuel additive composition according to Claim 1, wherein said additive composition is added to the base fuel after any other additives have been added.
- [c8] 8.The ether containing motor fuel additive composition according to Claim 1, wherein said MTBE is present in a amount of from about 1 volume percent to about 10 volume percent.
- [c9] 9.The ether containing motor fuel additive composition according to Claim 1, wherein said ETBE is present in a amount of from about 1 volume percent to about 10 volume percent.
- [c10] 10.An ether containing motor fuel additive composition which

reduces and modifies both fuel intake system and combustion chamber deposit formation for the purpose of reducing engine octane requirement increase and allows the use of lower levels of ether containing while retaining engine performance comprising a mixture of:(a)from about 5 to about 50 weight percent, based upon the total weight of components a and b, of a detergent component selected from the group consisting of(i)a reaction product of:(A)a substituted hydrocarbon of the formula $R_1 - X$ (I)

[c11] wherein R_1 is a hydrocarbyl radical having a molecular weight in the range of about 150 to about 10,000, and X is selected from the group consisting of halogens, succinic anhydride and succinic dibasic acid, and(B)an amino compound of the formula $H - (NH - (A)_m)_n - Y - R_2$ (II)

[c12] wherein Y is O or NR_5 , R_5 being H or a hydrocarbyl radical having 1 - 30 carbon atoms; A is a straight chain or branched chain alkylene radical having 1 - 30 carbon atoms; A is straight-chain or a branched-chain alkylene radical having 1 30 carbon atoms, m has a value in the range of 1 - 15; n has a value in the range of 0 - 6; and R_2 is selected from the group consisting of H, a hydrocarbyl radical having a molecular weight in the range of about 15 to about 10,000, and a homopolymeric or heteropolymeric polyoxyalkylene radical of the formula $R_3 - ((Q)_a(T)_b(Z)_c)_d-$ (III)

- [c13] wherein R_3 is H or a hydrocarbyl radical having 1 - 30 carbon atoms, Q, T, and Z are polyoxyalkylene moieties having 1 - 6 carbon atoms, a, b and c each have values ranging from 0 - 30, and d has a value in the range of 1- 50, and(ii)a polybutylamine or polyisobutylamine of the formula



- [c14] where R_{11} is a polybutyl or polyisobutyl radical derived from isobutene and up to 20% by weight of n-butene and R_{12} and R_{13} are identical or different and are each hydrogen, an aliphatic or aromatic hydrocarbon, a primary or secondary, aromatic or aliphatic aminoalkylene radical or polyaminoalkylene radical, a polyoxyalkylene radical or a heteroaryl or heterocyclyl radical, or, together with the nitrogen atom to which they are bonded, form a ring in which further hetero atoms may be present;(b)a fuel conditioner component comprising:(i)from about 2 to about 50 weight percent, based upon the total weight of components a and b, of a polar oxygenated hydrocarbon having an average molecular weight in the range of about 200 to about 500, an acid number in the range of about 25 to about 175, and a saponification number in the range of about 30 to about 250, and (ii)from about 2 to about 50 weight percent, based upon the total of components a and b, of an oxygenated compatibilizing agent preferably having a solubility parameter in the range of about 7.0

to about 14.0 and moderate to strong hydrogencapacity; and(c)
an ether selected from the group consisting of MTBE and ETBE.

[c15] 11.The ether containing motor fuel additive composition according to Claim 10, allowing the MTBE to be reduced below 15 volume percent while maintaining desired engine performance.

[c16] 12.The ether containing motor fuel additive composition according to Claim 10, allowing the ETBE to be reduced below 17.2 volume percent while maintaining desired engine performance.

[c17] 13.The ether containing motor fuel additive composition according to Claim 10, wherein said additive composition is added to the base fuel in an amount of from about 100 ppm to about 1000 ppm.

[c18] 14.The ether containing motor fuel additive composition according to Claim 10, wherein said additive composition is added to the base fuel containing a detergent in an amount of from about 100 ppm to about 500 ppm.

[c19] 15.The ether containing motor fuel additive composition according to Claim 10, wherein said additive composition is added to the base fuel simultaneously with any other additives.

[c20] 16.The ether containing motor fuel additive composition

according to Claim 10, wherein said additive composition is added to the base fuel after any other additives have been added.

[c21] 17.The ether containing motor fuel additive composition according to Claim 10, wherein said MTBE is present in a amount of from about 1 volume percent to about 10 volume percent.

[c22] 18.The ether containing motor fuel additive composition according to Claim 10, wherein said ETBE is present in a amount of from about 1 volume percent to about 10 volume percent.